

## Data sheet for SIMOTICS S-1FT7

Article No. : 1FT7082-5WH71-1DH0

Client order no. :  
Order no. :  
Offer no. :  
Remarks :

Item no. :  
Consignment no. :  
Project :



Figure similar

### Engineering data

|                         |                         |
|-------------------------|-------------------------|
| Rated speed             | 4,500 rpm               |
| Number of poles         | 10                      |
| Rated torque (100 K)    | 19.0 Nm                 |
| Rated current           | 23.90 A                 |
| Static torque (60 K)    | 17.5 Nm                 |
| Static torque (100 K)   | 21.0 Nm                 |
| Stall current (60 K)    | 20.50 A                 |
| Stall current (100 K)   | 24.00 A                 |
| Rotor moment of inertia | 43.00 kgcm <sup>2</sup> |
| Efficiency              | 94.0 %                  |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 0.86 Nm/A                     |
| Voltage constant at 20° C   | 54.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 0.12 Ω                        |
| Rotary field inductance     | 1.8 mH                        |
| Electrical time constant    | 15.00 ms                      |
| Mechanical time constant    | 1.40 ms                       |
| Thermal time constant       | 2 min                         |
| Shaft torsional stiffness   | 76,000 Nm/rad                 |
| Net weight of the motor     | 23.7 kg                       |

### Mechanical data

|                          |                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Motor type               | Permanent-magnet synchronous motor                                                                                         |
| Motor type               | Compact                                                                                                                    |
| Shaft height             | 80                                                                                                                         |
| Cooling                  | Water cooling                                                                                                              |
| Radial runout tolerance  | 0.050 mm                                                                                                                   |
| Concentricity tolerance  | 0.100 mm                                                                                                                   |
| Axial runout tolerance   | 0.100 mm                                                                                                                   |
| Vibration severity grade | Grade A                                                                                                                    |
| Degree of protection     | IP64                                                                                                                       |
| Design acc. to Code I    | IM B5 (compatible with 1FT6)                                                                                               |
| Temperature monitoring   | Pt1000 temperature sensor                                                                                                  |
| Color of the housing     | Standard (pearl dark gray similar to RAL 9023)                                                                             |
| Shaft end type           | Plain shaft                                                                                                                |
| Sensor design            | Encoder IC22DQ: incremental encoder 22 bits (resolution 4194304, encoder-internal 2048 S/R) + commutation position 11 bits |
| Electrical connection    | Connector turnable                                                                                                         |
| Connector size           | 1.5                                                                                                                        |

### Optimum operating point

|               |           |
|---------------|-----------|
| Optimum speed | 4,500 rpm |
| Optimum power | 8.9 kW    |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 8,000 rpm |
| Max. permissible speed (inverter) | 8,000 rpm |
| Maximum torque                    | 55.0 Nm   |
| Maximum current                   | 82.00 A   |

### Recommended Motor Module

|                          |         |
|--------------------------|---------|
| Rated inverter current   | 30.00 A |
| Maximum inverter current | 90.00 A |
| Maximum torque           | 55.0 Nm |

### Holding brake

|                        |                        |
|------------------------|------------------------|
| Holding brake version  | Permanent-magnet brake |
| Holding torque         | 48.0 Nm                |
| Braking torque         | 25.0 Nm                |
| Power supply voltage   | DC 24 V                |
| Coil current           | 1.00 A                 |
| Permissible brake work | 1,900 J                |
| Opening time           | 220 ms                 |
| Closing time           | 65 ms                  |